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**Georgia Institute
of Technology**



Center for Signal & Image Processing

Blind Adaptive Dereverberation of Speech Signals Using a Microphone Array

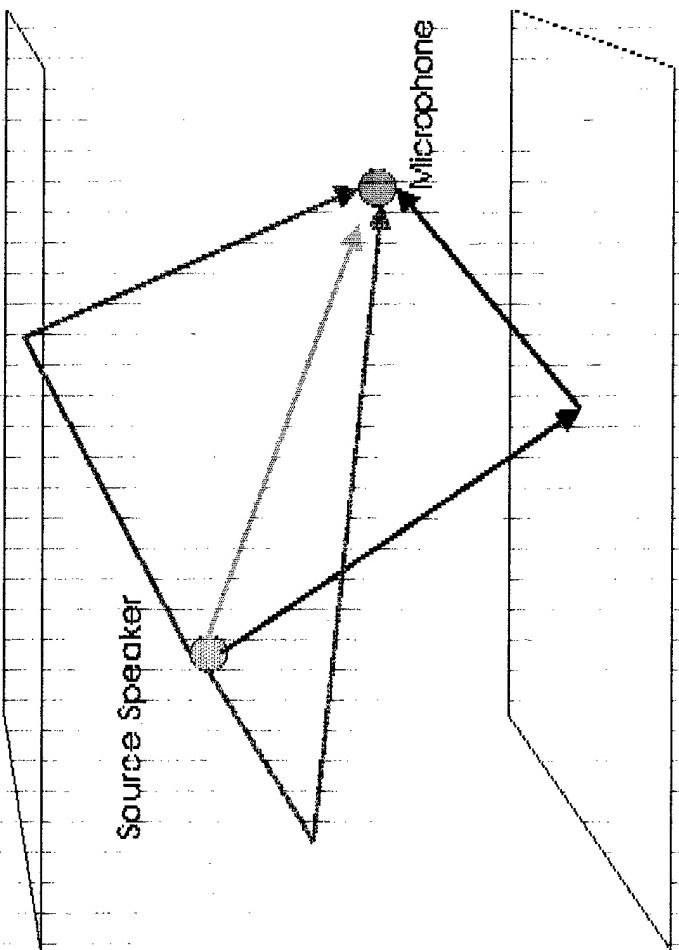
Presented by:

Tariq S. Bakir & Russell M. Mersereau

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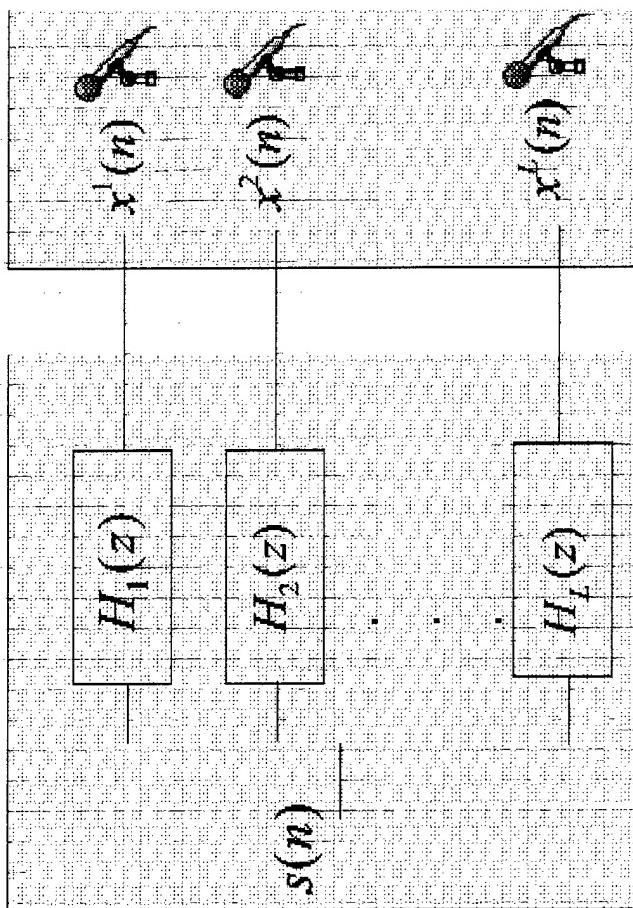
Problem Description

- Reverberation of speech signals in a closed room due to multipath signal propagation.



SIMO System Formulation

- Multiple microphones create the equivalent of multiple channels.



Unknown input and channels

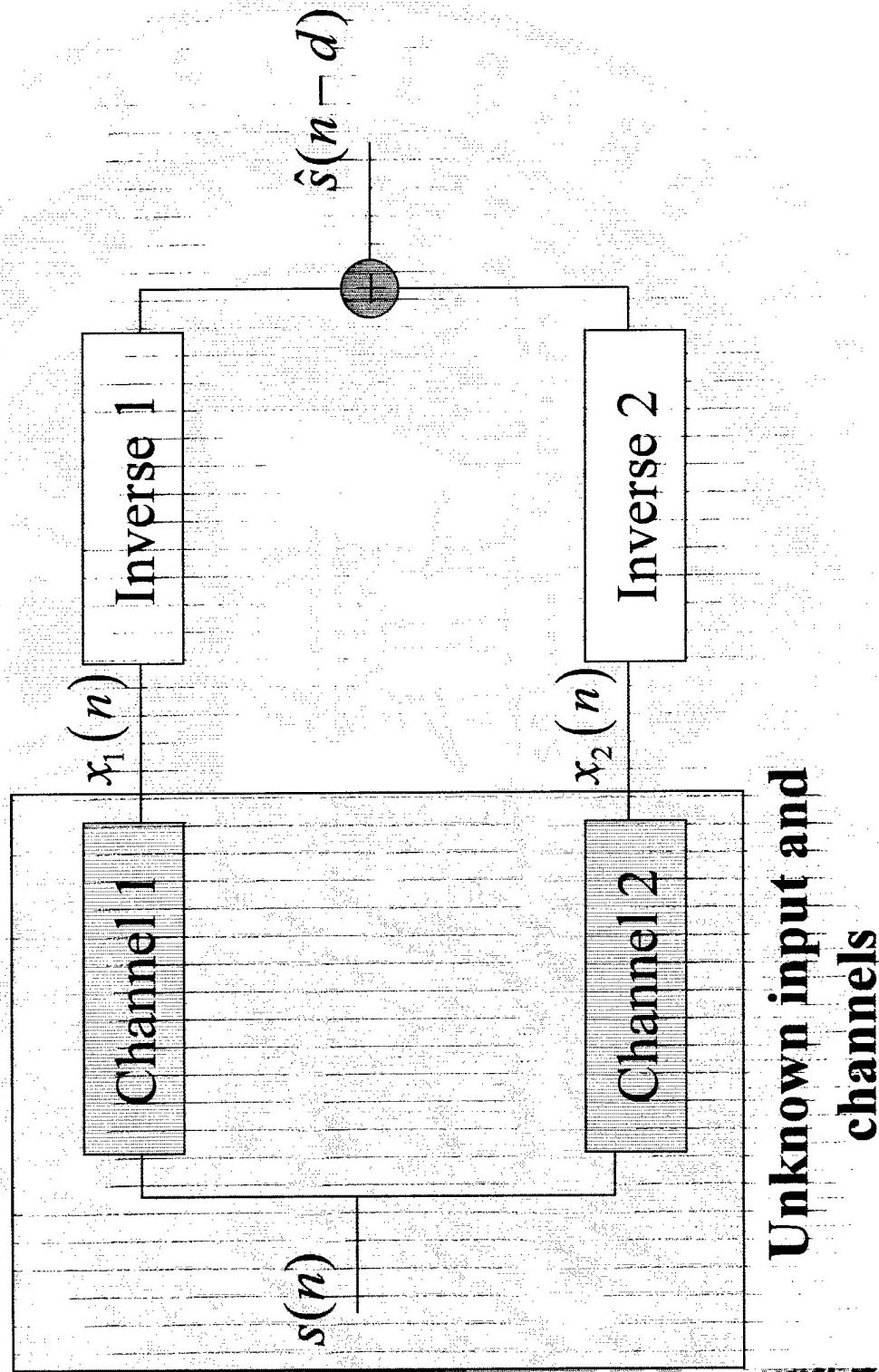
Known outputs

Dereverberation Approach

- Dereverberation accomplished by finding inverse filters for the channels.
- Use a reduced mutually referenced equalizers criterion to find inverses.
- Utilize second-order statistics of the reverberated speech signals.
- Speaker location and microphone locations not known a-priori.



Dereverberation System Diagram



Unknown input and
channels